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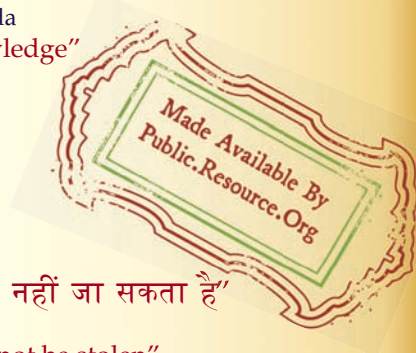
IS 7247-4 (1975): Code of practice for fumigation of agricultural produce, Part 4: Ethylene dichloride and Carbon tetrachloride mixture [FAD 16: Foodgrains, Starches and Ready to Eat Foods]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 7247 (Part IV)- 1975

Indian Standard

CODE OF PRACTICE FOR FUMIGATION OF AGRICULTURAL PRODUCE

PART IV ETHYLENE DICHLORIDE AND CARBON TETRACHLORIDE MIXTURE

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CARBON TETRACHLORIDE MIXTUREStorage Structures and Storage Management
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Storage Management Subcommittee, AFDC 28 : 9

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Indian Standard

CODE OF PRACTICE FOR FUMIGATION OF AGRICULTURAL PRODUCE

PART IV ETHYLENE DICHLORIDE AND CARBON TETRACHLORIDE MIXTURE

0. FOREWORD

0.1 This Indian Standard (Part IV) was adopted by the Indian Standards Institution on 30 June 1975, after the draft finalized by the Storage Structures and Storage Management Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Use of fumigants becomes necessary for pest control in various commodities including agricultural produce. Fumigants are, however, effective only under airtight conditions and, therefore, airtight condition is a pre-requisite for carrying out the fumigation. Further, it is necessary to choose the fumigant taking into consideration the likely reaction of the fumigant with the material to be fumigated; possible hazards to the operators, the area where the fumigation is to be carried out, and the time available for effecting fumigation. For the fumigation operation not only the operators who are actually going to carry out the fumigation are required to be trained, but they should be fully conversant with the various implications of the operation that is proposed to be carried out.

0.3 A series of Indian Standards is, therefore, being issued covering the selection, safety, and suitable application techniques of various fumigants. This standard covers EDCT mixture. It is hoped that adoption of these standards by storage units and export inspection agencies, both in the public and private sector, will promote efficiency, economy and safety.

1. SCOPE

1.1 This standard (Part IV) prescribes dosage and duration of exposure, precautions in handling and method of fumigation with ethylene dichloride-carbon tetrachloride mixture for pest control in stored agricultural produce and inputs.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 6151 (Part I)-1971* and IS : 6151 (Part II)-1971† shall apply.

3. GENERAL DESCRIPTION

3.1 The fumigant which is in the liquid form is a mixture of two chemicals, namely, ethylene dichloride and carbon tetrachloride in the ratio of 3 : 1 by volume.

4. DOSAGE AND DURATION OF EXPOSURE

4.1 The dosage of the fumigant shall be 300 g/m³ for stack fumigation or fumigation of bulk and 150 g/m³ for godown fumigation. The duration of exposure shall be 7 days in case of godown fumigation and 72 hours in case of fumigation of stacks.

5. MATERIALS TO BE FUMIGATED

5.1 EDCT mixture may be employed for fumigation of cereals, pulses and seeds. The fumigant should not be employed for products rich in fat or the milled products, nursery stocks or vegetables.

6. AVAILABILITY

6.1 EDCT mixture is supplied in 450-ml bottles and 4.5-, 9-, 90-litre drums. The required quantity may be taken out in open air with the wind blowing from behind the operator. The chemicals to be used for fumigation shall conform to IS : 634-1965‡.

7. METHOD OF FUMIGATION

7.1 Equipment

7.1.1 Gas-Mask — with canisters suitable for organic vapours.

7.1.2 Rubber Gloves

7.1.3 Overalls

7.1.4 Ladder

7.1.5 Sand Snakes

*Storage management code: Part I Terminology.

†Storage management code: Part II General care in handling and storage of agricultural produce and inputs.

‡Specification for ethylene dichloride-carbon tetrachloride mixture (3 : 1 v/v) (revised).

7.1.6 First-Aid Kit**7.1.7 Electric Torches and Cells****7.1.8 Gas-Proof Covers** — with pulley and strings.**7.2 Fumigation of Godown**

7.2.1 Fumigation with EDCT mixture should be undertaken only by technically competent persons knowing the nature and properties of the chemicals and all the precautions necessary for its use. In no case untrained persons shall handle this fumigant.

7.2.2 The godown to be fumigated shall be made airtight by closing the doors, windows and ventilators and by plugging the crevices and other leakages.

7.2.3 The operators should wear the gas mask, overall and rubber gloves before undertaking fumigation. Take the measured quantity of the fumigant in a tin or a petrol can based on the volume of the godown to be fumigated.

7.2.4 Pour the fumigant on bundles of empty unserviceable gunny bags or into a shallow pan on the top of stacks at 4 to 8 places in the godown depending on its size. Start pouring from the farthest end and proceed towards the door. Immediately after pouring, the operator should come out and close the door of the godown. Allow exposure for 7 days. After the completion of the exposure period open the doors and windows of the godown to provide cross ventilation. First open the doors and windows that can be opened from outside. Also switch on the exhaust fans, if provided. No person should be allowed to enter the godown before 4 to 6 hours of opening the doors.

7.3 Fumigation of Stacks

7.3.1 Make the stacks to uniform height. Cover the stack or stacks to be fumigated with gas-proof fumigation covers. Make the cover perfectly airtight by sand snakes. Check the covers for any possible leakages before undertaking the fumigation.

7.3.2 The operators shall wear gas mask and rubber gloves before starting the fumigation work.

7.3.3 Take the required quantity of the fumigant in a tin or a petrol can and pour it through the various openings on the top of the cover on the bundle of unserviceable gunny bags placed below the openings. Use funnel to avoid spillage. In case of big stacks, form a dome by placing extra bags at the four top corners of the stacks. This would help in better diffusion of the gas at the top layers.

7.3.4 After 72 hours of exposure period, remove the cover from stacks. Do not allow anybody to work near the stack under fumigation. The operators removing the cover should wear the gas mask.

7.3.4.1 Firstly, lift the edges of the cover quickly. After about two to three hours pull up the cover by means of pulleys and strings. Leave the covers on the stack for 6 to 8 hours for the vapours to escape completely.

8. PRECAUTIONS

8.1 Contact of the liquid with skin or contamination of clothing should be avoided. The operators undertaking the fumigation work should invariably wear gas mask, overall and rubber gloves.

8.2 Distribution of chemicals into tin or petrol cans shall be done very carefully under the direct supervision of the trained person.

8.3 In case of spillage of the fumigant on skin, the affected part should be immediately washed with soap and water.

8.4 In case the fumigant gets into the gloves, the latter should be properly washed before reuse.

8.5 Fumigation operation should be conducted by at least two persons working in collaboration.

8.6 Warning posters near the godown and at the doors should be displayed prominently.

8.7 Public entry into the area of fumigation should be prohibited.

8.8 Drinking or smoking during fumigation operation should be strictly prohibited.

8.9 The fumigated material should not be issued for consumption before one week has elapsed after fumigation.

9. FIRST-AID MEASURES

9.1 The symptoms of poisoning and diagnosis in case of exposure to the vapours of fumigants should be promptly attended to and first-aid treatment given as described in IS:4015 (Part I)-1967* and IS : 4015 (Part II)-1967†.

*Guide for handling cases of pesticides poisoning: Part I First-aid measures.

†Guide for handling cases of pesticides poisoning: Part II Symptoms, diagnosis and treatment.

INDIAN STANDARDS

ON

STORAGE STRUCTURES AND STORAGE MANAGEMENT

IS :

- 600-1955 Code of practice for construction of *BUKHARI* type rural foodgrain storage structure
- 601-1955 Code of practice for construction of *KOTHAR* type rural foodgrain storage structure
- 602-1955 Code of practice for construction of *MORAI* type rural foodgrain storage structure
- 603-1960 Code of practice for construction of underground rural foodgrain storage structures
- 607-1971 Code of practice for construction of bagged foodgrain storage structures (*second revision*)
- 609-1955 Code of practice for improvement of existing structures used or intended to be used for foodgrain storage
- 631-1961 Aluminium foodgrain storage bins
- 3453-1966 Code of practice for construction of hexagonal type concrete-cum-masonry bins for bulk storage of foodgrains
- 5503 (Part I)-1969 General requirements for silos for grain storage: Part I Constructional requirements
- 5503 (Part II)-1969 General requirements for silos for grain storage: Part II Grain handling equipment and accessories
- 5606-1970 Steel bins for grain storage
- 5826-1970 Constructional requirements for flat storage structures for grain (capacity above 200 tonnes)
- 6151 (Part I)-1971 Storage management code: Part I Terminology
- 6151 (Part II)-1971 Storage management code: Part II General care in handling and storage of agricultural produce and inputs
- 6201-1971 Constructional requirements for flat storage structures for grains 100-200 tonnes capacity
- 6663-1972 Method for determination of angle of repose of grains
- 7147 (Part I)-1973 Steel bins for domestic storage: Part I *GHARELU KOTHI*
- 7247 (Part I)-1973 Code of practice for fumigation of agricultural produce: Part I Methyl bromide
- 7247 (Part II)-1973 Code of practice for fumigation of agricultural produce: Part II Ethylene dibromide
- 7247 (Part III)-1973 Code of practice for fumigation of agricultural produce: Part III Aluminium phosphide

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